A.D. 1868. Dec 10. N°3,369.
WEARTON'S SPECIFICATION.

FIG. 5.
Section e f

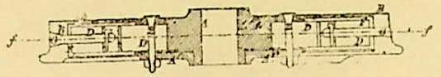


FIG. 3.
Section b b

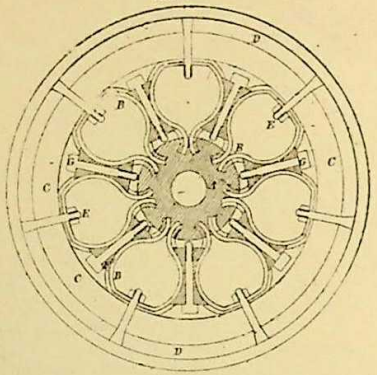


FIG. 7.
Section c c f f

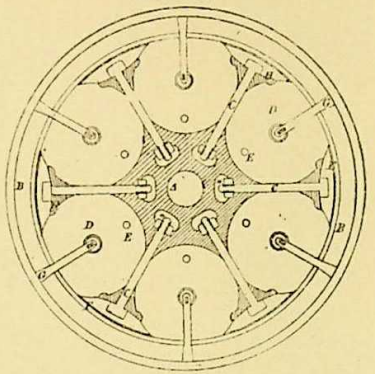


FIG. 10.
Section h h

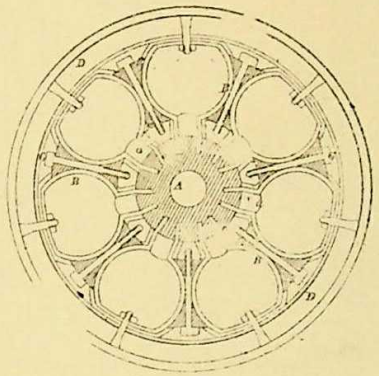


FIG. 1.
Elevation

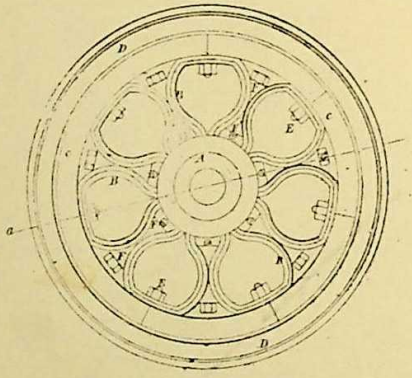


FIG. 4.
Elevation

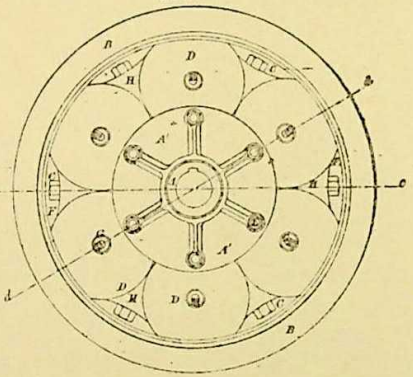


FIG. 8.
Elevation

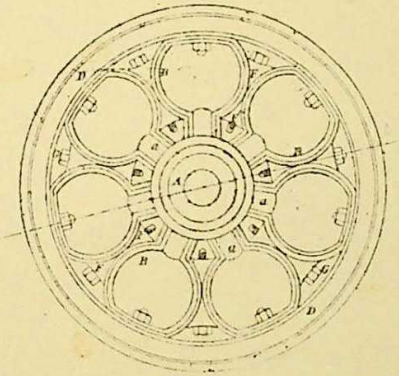


FIG. 2.
Section a a

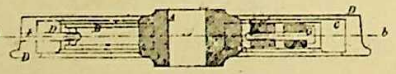
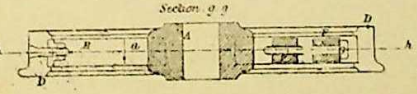


FIG. 6.
Section c c

FIG. 9.
Section g g



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12,336 ENGLISH 1868

A.D. 1848 . . . . . N° 12,369.

Wheels for Railway and other Carriages.

WHARTON'S SPECIFICATION

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM WHARTON, Superintendant of the Carriage Department of the London and North-western Railway Station, Euston Square, in the County of Middlesex, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her Royal Letters Patent under the Great Seal of Great Britain and Ireland, bearing date at Westminster, the Sixteenth day of December, in the twelfth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Wharton, my ex̃ors, adm̃ors, and assigns, Her especial licence, full power, sole privilege and authority, that I, the said William Wharton, my ex̃ors, adm̃ors, and assigns, and such others as I, the said William Wharton, my ex̃ors, adm̃ors, and assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, in the Islands of Guernsey, Jersey, Alderney, Sark, and Man, and also in all Her said Majesty's Colonies and Plantations abroad, my Invention of "CERTAIN IMPROVEMENTS IN THE CONSTRUCTION OF VEHICLES TO BE USED ON RAILWAYS OR OTHER ROADS AND WAYS;" in which said Letters Patent is contained a proviso requiring that I, the said William Wharton, should particularly

describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, to be enrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said Letters Patent, as in and by the same, reference being had thereto, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said William Wharton, do hereby declare the nature of my said Invention, and the manner in which the same is to be performed and carried into practical effect, to be as the same is described and ascertained in and by the following statement thereof, and by reference to the illustrative Sheet of Drawings hereunto annexed, and forming part of this my said Specification, and by the numeral figures and letters of reference marked upon the said Sheet of Drawings, that is to say:—

The first part of my Invention of "Certain Improvements in the Construction of Vehicles used on Railways or on other Roads and Ways" consists in a new mode of constructing the wheels of such vehicles, which I effect by the use and application of wedges to spokes of a new and peculiar formation, and by so arranging and combining such said spokes and wedges with the tyre and boss or nave of the wheel as to produce an entire wheel by the means and in the manner herein-after particularly described, set forth, and represented. And in order to explain my said Invention as completely as possible, I will proceed to describe the mechanical combinations and arrangements of parts which I consider well calculated for carrying my said Invention into practical effect, and which I have found to answer extremely well.

Description of the Drawings.

Figure 1 exhibits a side elevation of a wheel intended to be applied to vehicles used on railways. Figure 2 a transverse section thereof taken through the line *a*, *a*, at Figure 1. Figure 3 a longitudinal section taken through the line *b*, *b*, at Figure 2. Figure 4 exhibits a side elevation of another form of construction of railway wheels in its complete state. Figure 5 a transverse section thereof taken through the lines *c*, *c*, at Figure 4. Figure 6 a transverse section taken through the line *d*, *d*, at Figure 4. Figure 7 a longitudinal and vertical section of the wheel taken through the lines *e*, *e*, *f*, *f*, at Figures 5 and 6. Figure 8 exhibits a side elevation of another form or construction of wheel, to be applied to vehicles used on railways. Figure 9 is a transverse section thereof taken through the line *g*, *g*, at Figure 8. Figure 10 a longitudinal and vertical section of the wheel as it would appear when divided

through the line *h*, *h*, at Figure 9. At each of the above-mentioned Figures similar letters of reference are employed to denote corresponding parts in so far as such parts appear or can be seen at each of the Figures respectively. The construction of the wheel exhibited at Figures 1, 2, 3, is as follows:—A, A, marks the boss or nave of the wheel, into which boss or nave the ends of the curved wrought-iron spokes B are cast, or in some cases it may be found desirable to form the nave of wrought iron. The spokes B are connected to a wooden felloe C, and to the tyre D of the wheel by countersunk bolts and nuts E, as shewn at Figures 2 and 3, and between each pair of spokes wedge-shaped pieces of metal F, F, are placed, and said wedges are connected together by a bolt G passed through a hole formed therein. The lower extremity of the said bolt has a thread or screw cut about it, and there is a corresponding thread or screw formed in the hole in the wedge F^1, into which the bolt G takes, and by turning round the said bolt in one direction by means of a key or spanner placed upon the head of the bolt, the wedge-shaped pieces F, F, will be made to approach towards each other, which will have the effect of compressing the curved sides of the spokes, and thereby cause that part of the spoke which is in contact with the felloe to be pressed forcibly against it, and such pressure will be transmitted from the felloe to the tyre, and in this manner and by these means I form a solid and substantial wheel.

At Figures 4, 5, 6, 7, there is exhibited another form of construction of wheel to be applied to vehicles used on railways, the combination and arrangement of which is as follows:—A, A^1 marks the cast iron boss or nave of the wheel formed in two parts. B, B, the tyre, which is connected to the boss or nave in the following manner:—It will be seen upon referring to Figures 6 and 7 that the part A of the boss or nave has holes formed therein through which bolts C are passed in a radial direction from the centre of the wheel, said bolts being employed for the purpose hereafter mentioned. D, D, mark blocks of wood of the configuration exhibited. These blocks of wood are connected to the boss or nave of the wheel by countersunk bolts and nuts E, said bolts being passed through holes formed in the parts A, A^1, of the nave and block D, as shewn at Figures 4, 5, 7, and the outer extremity of each of the blocks D is securely connected to a ring of wrought iron F formed with two flanges, as shewn at Figures 5 and 6, by means of countersunk bolts G passed through holes formed in the tyre B, the ring F, and block D, and there is a hole formed through the centre of each block, and fitted with a short tube of metal, for the purpose of connecting these last-mentioned parts together by means of a split key passed through a hole in the end of the bolt G, as shewn. H, H, mark wedge-shaped

pieces of metal placed between each pair of wood blocks, the same being connected thereto and to the boss or nave by a bolt C and nut fixed at Figures 6 and 7; or the bolt C may be either cast into the nave of the wheel, in which case there would be a nut upon its other extremity, or the said bolt may be screwed into the nave of the wheel instead of passing through it as at Figure 7. Thus it will appear evident that by turning round the bolt C by means of a key or spanner, the wedge-shaped piece H will be forcibly pressed against, and between each pair of blocks, and as each of these wedges is successively tightened, it will be obvious that each block will be compressed, and the grain or fibre of the wood blocks must be placed radiating from the centre of the wheel, and in this manner and by these means I form a solid and substantial wheel. It should be observed that the wedges H may be easily tightened from time to time by the means before described, should the shrinkage of the wood blocks D require it. At Figures 8, 9, 10, there is exhibited another form of construction of wheel to be applied to vehicles used in railways, the same being a modification of the wheel before described with reference to Figures 1, 2, 3; the difference of construction between these two wheels is as follows:—It will be seen, upon referring to Figures 8, 9, 10, that the ends of the curved spokes B are formed straight, and are so disposed in the boss or nave A of the wheel as to receive a taper block *a* between those portions of the spoke beyond the said boss or nave. It should also be observed that the wooden felloe (exhibited at Figure 1) is in this wheel entirely dispensed with, the spokes being in close contact with the tyre D of the wheel, and connected thereto in a similar manner to the former wheel, and there are wedge-shaped pieces of metal F, F^1, placed between each pair of spokes, and connected together as shewn at Figures 8, 9, 10. The effect of this arrangement is as follows:—Upon tightening the bolts G the wedge-shaped pieces F, F^1, will compress the curved sides of the spoke, and thereby cause the outer curved end thereof to be forcibly pressed against the tyre of the wheel, at the same time the ends or straight portions of the spoke will be pressed against the taper block *a*, which will also be compressed, and thereby cause the several parts of the wheel to be firmly connected together; and in this manner and by these means I form a solid and substantial wheel. I would remark, that in constructing wheels upon the principle set forth and described, whether such wheels be intended to be applied to vehicles used on railways or on other roads or ways, the tyre of the wheel when connected to the other parts may, as regards Figures 1 and 8, be put on in a cold state instead of being "shrunk on," as hitherto usually practised in the construction of wheels. As regards Figure 6 I put

on the inner tyre cold, leaving the joint about one inch open, the outer tyre being shrunk on in the usual manner.

Another part of my Invention of Certain Improvements in the Construction of Vehicles used on Railways or other Roads or Ways consists in constructing wheels to be used on common roads or ways upon the principle herein-before particularly described with reference to wheels to be used on railways; the difference consists simply in making the tyre of the wheel for common roads flat instead of flanged, and the nave must be formed to suit the axle upon which it is to be placed. In other respects the arrangement and construction of the wheels are similar to those before described and represented. I would here remark, that although I have referred to the Sheet of Drawings hereunto annexed in order to illustrate my Invention, I do not limit or confine myself to the precise details of the methods herein-before described or demonstrated in said Sheet of Drawing of constructing wheels for railway or common roads or ways, or to the precise proportions, or to any particular sort of wood or iron, unless where it is definitely so expressed, as such details and proportions must be varied so as to suit the several descriptions of vehicles to which they may be applied, and the size or weight thereof.

Having now described the nature of my said Invention, and in what manner the same is to be performed, I desire it to be distinctly understood that I do not claim the exclusive use of the separate parts above mentioned and referred to, except in so far as the same may be employed in combination, and for the purposes of my said Invention, which I hereby declare to consist in, and I claim,—

Firstly, the use and application of wedges or wedged-shaped pieces of metal in combination with and adapted to curved or bent spokes of metal, in the manner and for the purpose herein-before particularly described with reference to Figures 1, 2, 3, 8, 9, 10, of the Sheet of Drawings hereunto annexed.

Secondly, I claim the application of wedges or wedged-shaped pieces of metal in connection with blocks of wood, either of the form shewn or hexagonal, arranged in the manner and for the purpose herein-before particularly described with reference to Figures 4, 5, 6, 7, of the Sheet of Drawings hereunto annexed.

In witness whereof, I, the said William Wharton, have hereunto set my hand and seal, this Fifteenth day of June, in the year of our Lord One thousand eight hundred and forty-nine.

WILLIAM (L.S.) WHARTON.

ANDERSON.

AND BE IT REMEMBERED, that on the Fifteenth day of June, in the year of our Lord 1849, the aforesaid William Wharton came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

Enrolled the Sixteenth day of June, in the year of our Lord One thousand eight hundred and forty-nine.

LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1857.